86. (new) The method of claim 84 wherein the two-dimensional array forms a monolayer extending in a direction substantially perpendicular to the orientation of the single-wall carbon nanotubes.

87. (new) The method of claim 85 wherein the two-dimensional array forms a monolayer extending in directions substantially perpendicular to the orientation of the single-wall carbon nanotubes.

88. (new) The method of claim 84 wherein the plurality comprises single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

89. (new) The method of claim 85 wherein the plurality comprises single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

90. (new) The method of claim 86 wherein the two-dimensional array comprises single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

91. (new) The method of claim 87 wherein the two-dimensional array comprises single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

92. (new) The method of claim 84 wherein the plurality of single-wall carbon nanotubes comprises derivatized single-wall carbon nanotubes having at least one substituent bonded to at least end of the single-wall carbon nanotubes.

93. (new) The method of claim 84 wherein the plurality of single-wall carbon nanotubes comprises endohedrally modified single-wall carbon nanotubes.

94. (new) The method of claim 84 wherein the single-wall carbon nanotubes are predominantly of (n,n) type.

95. (new) The method of claim 84 wherein the single-wall carbon nanotubes are predominantly of (m,n) type, wherein m is not equal to n.

96. (new) A method for forming an array of single-wall carbon nanotubes comprising:

a) providing a plurality of single-wall carbon nanotubes;

b) providing a substrate to which a linking moiety will bind; and

c) binding the linking moiety to the substrate and onto at least one end of at least one single-wall carbon nanotube.

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97. (new) The method of claim 96 wherein the plurality comprises single-wall carbon nanotubes having a homogeneous characteristic selected from the group, consisting of lengths, diameters, helicities and combinations thereof.

98. (new) The method of claim 96 wherein the plurality comprises single-wall carbon nanotubes in substantially parallel orientation, and wherein the substantially parallel orientated single-wall carbon nanotubes form a monolayer on the substrate.

99. (new) The method of claim 97 wherein the plurality comprises single-wall carbon nanotubes in substantially parallel orientation, and wherein the substantially parallel orientated single-wall carbon nanotubes form a monolayer on the substrate.

100. (new) The method of claim 96 wherein the plurality comprises single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

101. (new) The method of claim 97 wherein the plurality comprises single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

102. (new) The method of claim 98 wherein the plurality comprises single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

103. (new) The method of claim 99 wherein the plurality comprises single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

104. (new) The method of claim 96 wherein the plurality comprises endohedrally-modified single-wall carbon nanotubes.

105. (new) The method of claim 96 wherein the substrate comprises a metal selected from the group consisting of gold, mercury and indium-tin-oxide.

106. (new) The method of claim 96 wherein the linking moiety comprises a moiety selected from the group consisting of -S-, -S-$(CH_2)_n$ -NH- and -$SiO_3(CH_2)_3NH$-.

107. (new) The method of claim 96 wherein the single-wall carbon nanotubes are predominantly of (n,n) type.

108. (new) The method of claim 96 wherein the single-wall carbon nanotubes are predominantly of (m,n) type, wherein m is not equal to n.

109. (new) A method of forming a patterned array of single-wall carbon nanotubes comprising:

a) masking a first portion of a substrate, wherein the substrate has a first unmasked portion;

b) binding a first plurality of single-wall carbon nanotubes to the first unmasked portion of the substrate using a first linking moiety;

c) removing the mask from the first portion of the substrate;

d) masking a second portion of the substrate, wherein the substrate has a second unmasked portion; and

e) binding a second plurality of single-wall carbon nanotubes to the second unmasked portion of the substrate using a moiety selected from the group consisting of the first linking moiety and a second linking moiety.

110. (new) The method of claim 109 where the first plurality is a predominately different type of single-wall carbon nanotubes from the second plurality.

111. (new) The method of claim 109 wherein:

a) the first plurality has a first homogeneous characteristic selected from the group consisting of lengths, diameters, helicities and combinations thereof;

b) the second plurality has a second homogeneous characteristic selected from the group consisting of lengths, diameters, helicities; and combinations thereof; and

c) the first homogeneous characteristic is different than the second homogeneous characteristic.

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112. (new) An array comprising single-wall carbon nanotubes aggregated in substantially parallel orientation.

113. (new) The array of claim 112 wherein the single-wall carbon nanotubes comprise a group of single-wall carbon nanotubes having a homogeneous characteristic selected from the group consisting of lengths, diameters, helicities and combinations thereof.

114. (new) The array of claim 112 wherein the single-wall carbon nanotubes form a monolayer extending in a direction substantially perpendicular to the orientation of the single-wall carbon nanotubes.

115. (new) The array of claim 113 wherein the single-wall carbon nanotubes form a monolayer extending in a direction substantially perpendicular to the orientation of the single-wall carbon nanotubes.

116. (new) The array of claim 112 wherein the single-wall carbon nanotubes have lengths in the range between about 5 and about 1000 nm.

117. (new) The array of claim 113 wherein the single-wall carbon nanotubes have lengths in the range between about 5 and about 1000 nm.

118. (new) The array of claim 114 wherein the single-wall carbon nanotubes have lengths in the range between about 5 and about 1000 nm.

119. (new) The array of claim 115 wherein the single-wall carbon nanotubes have lengths in the range between about 5 and about 1000 nm.

120. (new) The array of claim 112 comprising single-wall carbon nanotubes with at least one substituent bonded at at least one end of the single-wall carbon nanotubes.

121. (new) The array of claim 112 comprising endohedrally modified single-wall carbon nanotubes.

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122. (new) The array of claim 112 wherein the single-wall carbon nanotubes are predominantly of (n,n) type.

123. (new) The array of claim 112 wherein the single-wall carbon nanotubes are predominantly of (m,n) type, wherein m is not equal to n.

124. (new) A substantially two-dimensional array comprising single-wall carbon nanotubes aggregated in substantially parallel orientation, wherein the single-wall carbon nanotubes are attached to a substrate.

125. (new) A substantially two-dimensional array comprising single-wall carbon nanotubes aggregated in substantially parallel orientation, wherein at least one substituent at at least one end of the single-wall carbon nanotubes interact chemically with a substrate.

126. (new) The array of claim 124 comprising single-wall carbon nanotubes having a homogeneous characteristic selected from the group consisting of lengths, diameters, helicities and combinations thereof.

127. (new) The array of claim 124 comprising single-wall carbon nanotubes aggregated in substantially parallel orientation, wherein the substantially parallel oriented single-wall carbon nanotubes form a monolayer on the substrate.

128. (new) The array of claim 126 comprising single-wall nanotubes aggregated in substantially parallel orientation, wherein the substantially parallel oriented single-wall carbon nanotubes form a monolayer on the substrate.

129. (new) The array of claim 124 comprising single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

130. (new) The array of claim 126 comprising single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

131. (new) The array of claim 127 comprising single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

132. (new) The array of claim 128 comprising single-wall carbon nanotubes having lengths in the range between about 5 and about 1000 nm.

133. (new) The array of claim 124 comprising endohedrally modified single-wall carbon nanotubes.

134. (new) The array of claim 124 wherein the substrate comprises a metal selected from the group consisting of gold, mercury and indium-tin-oxide.

135. (new) The array of claim 125 wherein the substituent is a moiety selected from the group consisting of -S-, -S-$(CH_2)_n$ -NH- and -$SiO_3(CH_2)_3NH$-.

136. (new) The array of claim 124 wherein the single-wall carbon nanotubes are predominantly of (n,n) type.

137. (new) The array of claim 124 wherein the single-wall carbon nanotubes are predominantly of (m,n) type, wherein m is not equal to n.

138. (new) The array of made by the process of:

a) masking a first portion of a substrate, wherein the substrate has a first unmasked portion;

b) binding a first plurality of single-wall carbon nanotubes to the first unmasked portion of the substrate using a first linking moiety;

c) removing the mask from the first portion of the substrate;

d) masking a second portion of the substrate, wherein the substrate has a second unmasked portion; and

e) binding a second plurality of single-wall carbon nanotubes to the second unmasked portion of the substrate using a moiety selected from the group consisting of the first linking moiety and a second linking moiety.

139. (new) The array of claim 138 wherein the first plurality is a predominately different type of single-wall carbon nanotubes from the second plurality.

140. (new) The array of claim 138 further made wherein:

a) the first plurality has a first homogeneous characteristic selected from the group consisting of lengths, diameters, helicities and combinations thereof;

b) the second plurality has a second homogeneous characteristic selected from the group consisting of lengths, diameters, helicities and combinations thereof; and

c) the first homogeneous characteristic is different than the second homogeneous characteristic.

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